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ABSTRACT

The United States Training and Employment Service General Aptitude Test Battery (GATB), first published in 1947, has been included in a continuing program of research to validate the tests against success in many different occupations. The GATB consists of 12 tests which measure nine aptitudes: General Learning Ability; Verbal Aptitude; Numerical Aptitude; Spatial Aptitude; Form Perception; Clerical Perception; Motor Coordination; Finger Dexterity; and Manual Dexterity. The aptitude scores are standard scores with 100 as the average for the general working population, and a standard deviation of 20. Occupational norms are established in terms of minimum qualifying scores for each of the significant aptitude measures which, when combined, predict job performance. Cutting scores are set only for those aptitudes which aid in predicting the performance of the job duties of the experimental sample. The GATB norms described are appropriate only for jobs with content similar to that shown in the job description presented in this report. A description of the validation sample is included.

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TECHNICAL REPORT

ON

STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

BUNDLER, LAUNDRY 9-68.30

B-572 or S-292

U.S. DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
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U. S. Employment Service
in Cooperation with
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Key State Agency - Utah

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STANDARDIZATION OF THE GENERAL APTITUDE TEST BATTERY

FOR

Bundler, Laundry 9-68.30

B- 572

Summary

The General Aptitude Test Battery, B-1002, was administered to a final sample of 50 individuals employed as Bundlers, Laundry 9-68.30 at various plants of four linen supply companies. The criterion consisted of supervisory ratings. On the basis of mean scores, standard deviations, correlations with the criterion, job analysis data and their combined selective efficiency, Aptitudes Q-Clerical Perception and M-Manual Dexterity were selected for inclusion in the final test norms.

GATB Norms for Bundler, Laundry 9-68.30, B-572

B-1001			B-1002		
Aptitude	Tests	Minimum Acceptable Aptitude Score	Aptitude	Tests	Minimum Acceptable Aptitude Score
Q	CB-1-B	90	Q	Part 1	90
M	CB-1-M CB-1-N	80	M	Part 9 Part 10	80

Effectiveness of Norms

The data in Table IV indicate that only 64 percent of the non-test-selected workers used for this study were good workers; if the workers had been test-selected with the above norms, 79 percent would have been good workers. 36 percent of the non-test-selected workers used for this study were poor workers; if the workers had been test-selected with the above norms, only 21 percent would have been poor workers.

TECHNICAL REPORT

I. Purpose

This study was conducted to determine the best combination of aptitudes and minimum scores to be used as norms on the General Aptitude Test Battery for the occupation of Bundler, Laundry 9-68.30.

II. Sample

The General Aptitude Test Battery, B-1002, was administered during the period March 14, 1961 to March 5, 1963 to 53 females and 2 males employed as Bundler, Laundry 9-68.30. The name and location of each company from which the sample was obtained, the form of the GATB used and number of employees tested at each company plant, and the number of tested employees at each plant not included in the final sample are as follows:

<u>Name of Company</u>	<u>Location</u>	<u>Number Tested</u>	<u>GATB Form</u>	<u>Number Eliminated</u>
American Linen Supply Co.	Salt Lake City, Utah	9	A	1
	Ogden, Utah	5	A	0
	Milwaukee, Wisconsin	7	A	2
	Denver, Colorado	5	A	1
	Phoenix, Arizona	4	A	0
	Portland, Oregon	7	A	1
	Las Vegas, Nevada	9	A	0
Spokane Linen Supply Co.	Spokane, Washington	5	A	0
Milwaukee Linen Supply Co.	Milwaukee, Wisconsin	2	B	0
Mickey Linen Company	Milwaukee, Wisconsin	2	B	0
		<u>55</u>		<u>5</u>

Of the 55 tested workers, 5 were eliminated from the final sample; one because criterion ratings were not obtained, two because of difficulty in taking the GATB, and two because they were working supervisors who made the criterion ratings. The final sample consisted of 48 women and 2 men.

Supervisors in each plant referred to a master job description to determine if job duties were similar. No major variances in job duties were found. No strict age, education, or experience requirements were adhered to at any of the plants in selecting individuals for employment, but applicants with at least an eighth-grade education are preferred. Pre-employment tests played no significant role in employee selection at any of the plants, and no special interviewing techniques were used. Workers are trained on-the-job and a minimum of one month of experience is necessary to reach job proficiency. All workers in the final sample are considered experienced.

TABLE I

Means (M), Standard Deviations (σ), Ranges, and Pearson Product-Moment Correlations with the Criterion (r) for Age, Education and Experience

N = 50	<u>M</u>	<u>σ</u>	<u>Range</u>	<u>r</u>
Age (years)	38.7	10.9	19-58	-.059
Education (years)	10.0	1.8	6-14	.230
Experience (months)	60.0	55.0	1-216	.166

III. Job Description

Job Title: Bundler, Laundry 9-68.30

Job Summary: Assembles, wraps and ties bundles of clean linen. Obtains customer's invoice showing bundle breakdown information for garments and flat articles. Locates proper items and assembles into loose bundles by account number. Checks items off invoice as orders are filled. Operates Wrap O'Matic paper cutting machine and automatic tying machine to wrap and tie completed bundles.

Work Performed: May be assigned any or all of the following duties to assemble, wrap and tie bundles of clean linen.

Assembles loose bundles of garments: Obtains customer's invoice showing breakdown information on number of bundles in order, and count and style of garments in each bundle. Clips invoice to front of open shelves according to numerical sequence of account number. Removes stack of clean garments from clean linen truck and places in loose bundles on open shelves by matching garments against bundle and account data on invoice. Checks off items on invoice or second bundle list when all garments in bundle are included. Places appropriate document on completed bundle and pushes to far side of open shelf. Moves empty clean linen trucks from work area.

Assembles orders for flat articles: Removes assembled bundles of garments from open shelves and places on work counter. Checks invoice or second bundle list for flats to be included with garments. Removes required items from storage shelves and adds to bundle, restacking items for wrapping whenever necessary. Obtains customer's invoice showing bundle breakdown on orders for flat articles only. Removes items from appropriate storage shelves, breaking stacks of any precounted items whenever necessary to get correct count on customer's order. Makes certain that orders are filled correctly, including standing requests for special sizes of items. Checks off items on invoice or second bundle list as each bundle is completed. Places appropriate order document on bundle and moves bundle onto clean linen belt for transport to wrapper. May restock storage shelves with clean flat items as required.

Wraps and ties bundles of clean linen: Sizes up bundle of clean linen and pushes proper button on Wrap O'Matic paper cutting machine which cuts a predetermined length of paper from continuous roll. Removes loose bundle of linen from clean linen belt and places on paper. Wraps paper around bundle and folds in ends by hand. Lays invoice on bundle or wets gummed second bundle list and sticks to bundle. Places wrapped bundle on tying machine. Depresses foot lever on machine which automatically ties bundle with string. Places wrapped and tied bundle on clean linen belt for dispatch to loading area. Replaces rolls of paper in paper cutting machine as needed.

IV. Experimental Battery

All the tests of the GATB, B-1002, were administered to the sample group. (For form of GATB used see information in "Sample" section of this report.)

V. Criterion

The criterion data were collected during the period June 7, 1961 to March 11, 1963 and consisted of two sets of independent ratings made by the first-line supervisor using a descriptive rating scale designed to measure job proficiency of Laundry Bundlers. A period of at least two weeks elapsed between the first and second ratings. The rating scale consisted of five items covering different aspects of job performance, with four alternatives for each item. Weights of one through four, indicating the degree of job proficiency attained, were assigned to the alternatives. A reliability coefficient of .90 was obtained for the criterion. Therefore, the two sets of ratings were combined resulting in a distribution of final criterion scores of 19-40, with a mean of 30.0 and a standard deviation of 5.3.

VI. Qualitative and Quantitative Analyses

A. Qualitative Analysis

On the basis of the job analysis data, the following aptitudes were rated "important" for success in this occupation:

Clerical Perception (Q) - required in checking items off invoice or second bundle list as orders are filled.

Manual Dexterity (M) - required in moving garments and flatwork to and from shelves, making up bundles, and operating a paper cutting machine and automatic tying machine.

On the basis of the job analysis data, Verbal Aptitude (V) and Spatial Aptitude (S) were rated irrelevant for success in this occupation.

B. Quantitative Analysis:

TABLE II

Means (M), Standard Deviations (σ), and Pearson Product-Moment Correlations with the Criterion (r) for the Aptitudes of the GATB; N = 50

Aptitudes	M	σ	r
G-Intelligence	84.8	18.3	.214
V-Verbal Aptitude	90.7	15.8	-.195
N-Numerical Aptitude	82.2	17.0	.146
S-Spatial Aptitude	88.6	17.7	.162
P-Form Perception	90.3	22.1	.072
Q-Clerical Perception	93.9	15.2	.325*
K-Motor Coordination	100.1	15.7	.139
F-Finger Dexterity	94.3	18.9	.139
M-Manual Dexterity	103.6	20.1	.158

*Significant at the .05 level

C. Selection of Test Norms:

TABLE III

Summary of Qualitative and Quantitative Data

Type of Evidence	Aptitudes									
	G	V	N	S	P	Q	K	F	M	
Job Analysis Data										
<u>Important</u>						X			X	
Irrelevant		X		X						
Relatively High Mean						X	X	X	X	
Relatively Low Sigma										
Significant Correlation with Criterion						X				
Aptitudes to be Considered for Trial Norms						Q			M	

Trial norms consisting of various combinations of Aptitudes with appropriate cutting scores were evaluated against the criterion by means of the Phi Coefficient technique. A comparison of the results showed that B-1002 norms consisting of Q-90 and M-80 had the best selective efficiency.

VII. Validity of Norms

The validity of the norms was determined by computing a Phi Coefficient between the test norms and the criterion and applying the Chi Square test. The criterion was dichotomized by placing 36 percent of the sample in the low criterion group because this percent was considered to be the unsatisfactory or marginal workers.

Table IV shows the relationship between test norms consisting of Aptitudes Q and M with critical scores of 90 and 80, respectively, and the dichotomized criterion for Bundler, Laundry 9-68.30. Workers in the high criterion have been designated as "good workers" and those in the low criterion group as "poor workers."

TABLE IV

Validity of Test Norms for Bundler, Laundry 9-68.30
(Q-90, M-80)

N = 50	Non-Qualifying Test Scores	Qualifying Test Scores	Total
Good Workers	10	22	32
Poor Workers	12	6	18
Total	22	28	50

Phi Coefficient = .342

$\chi^2 = 5.850$

$P/2 < .01$

The data in the above table indicate a significant relationship between the test norms and the criterion for the sample.

VIII. Conclusions

On the basis of the results of this study, Aptitudes Q and M with minimum scores of 90 and 80, respectively, have been established as B-1002 norms for Bundler, Laundry 9-86.30. The equivalent B-1001 norms consist of Q-90 and M-80.

IX. Determination of Occupational Aptitude Pattern

The data for this study met the requirements for incorporating the occupation studied into OAP-33 which is shown in Section II of the Guide to the Use of the General Aptitude Test Battery, January 1962.